

## FY 2004 Test and Evaluation Guidance for CHSSI Portfolios and Projects

### Software Acceptance Test (SAT)

Test Phase	Purpose	Users	Test Reviewers	Decision to Continue Project
Software Acceptance Test	Analyze and document starting point.	Development team	CTA/Portfolio Leader	CTA/Portfolio Leader

#### 1. Purpose

The software acceptance test is a formal test event that serves to establish the technical starting point of the project and the management focus of the team. The purposes of the SAT are to: determine the starting points of the project, evaluate and refine the detailed technical approach, identify and ameliorate risks of the project, and ensure DoD relevance. At this stage in the development process, it is important to analyze the project's Critical Technical Parameters against the project's proposal and the code's starting performance; to review and ensure responsibilities and processes are in place to address Project Management Indicators, and to document initial performance. Initial performance and capability, combined with the project's cost and schedule information will provide life-cycle cost and return-on-investment data.

Software Acceptance Test Overview			
Purpose	How	When	Expected Outcome
<b>Ensure DoD relevance.</b>	Examine the Critical Technical Parameters (CTPs) against the project's proposal. Ensure cases/data planned for testing reflect the proposal's purpose, deliverables, and DoD requirements. Refine CTPs as necessary. Obtain approval for the revised CTPs from the SAS PM.	Prior to preparing the SAT test plan.	CTPs that match the proposal's goals. DoD relevance is one of the key reasons the project was funded in the first place.
<b>Determine the starting points of the project.</b>	Test the code against the critical technical parameters for SAT; profile the code to determine and document starting point for development and future testing.	At the SAT event.	CTPs that are realistic and provide clear measurable performance goals and code analysis that will help place future development work on firm foundation.
<b>Obtain user feedback about the usefulness of the code.</b>	1. Obtain user feedback concerning requirements vis-a-vis the code's current and planned performance. 2. Propose modifications to the CTPs as appropriate.	1 Before and at the test event. 2 Within the test report and evaluation report.	Updated requirements analysis.
<b>Evaluate and refine the detailed technical approach.</b>	1. Verify the code's performance readiness for development. 2. Profile the code and conduct a regression analysis to validate CTPs thresholds and optimum objectives. 3. Review the software development plan (SDP) technical approach. 4. Direct revision of the SDP as necessary. CTA/Portfolio Leader approve revision to the SDP as appropriate.	1, 2 and 3 at the SAT event.  4 Within the SAT report.	Improved or validated technical approach to reduce time/effort and problems during the development effort.
<b>Identify and ameliorate risks of the project.</b>	1. Review the work breakdown structure (WBS), cost and schedule. 2. Review and formalize Project Management indicators (PMIs) performance and tracking responsibilities. 3. Direct modifications to the WBS, cost and schedule. CTA/Portfolio Leader approve revisions as appropriate. 4. Document and plan remediation of known and anticipated risks.	1 and 2 at the SAT event.  3 Within the SAT report. 4 In the SDP revision.	Improved delineation of duties and refinement of cost and schedule.

**Figure 1 Software Acceptance Test Overview**

## FY 2004 Test and Evaluation Guidance for CHSSI Portfolios and Projects

This test event and its concomitant meeting of the CTA/Portfolio Leader with the Project Principal Investigator and the development team sets the effort on the right path to ensure it is focused to meet the project's goals and employs a sound development and management process. It is the cornerstone event upon which the development effort is built. *The CTA/Portfolio Leader, Project Principal Investigator and development team should take full advantage of the event and ensure that the legacy code, development process and goals, and management responsibilities are sufficiently understood to facilitate the development effort and instill practices which promote success.*

### 2. Evaluator

The CTA/Portfolio Leader is the evaluator for the SAT.

### 3. Method

This first level of test and evaluation will consist of a test event and discussion, and a formal report of both.

The SAT methodology should include formal compliance with the SAT test plan (including code profiling) and a discussion between the CTA/Portfolio Leader and Principal Investigator concerning the project's planning and organization and other pertinent issues peculiar to the project.

The CTA/Portfolio Leader should use the SAT to determine the starting points of the project, the viability of the approach planned to develop the parallel software, the validity of the project's CTPs, and if the risks associated with the approach are well understood. The CTA/Portfolio Leader should focus on all of the areas outlined in the overview figure, above, and the project's Software Development Plan. In addition, the Principal Investigator's initial performance and his/her plans to accomplish the PMIs highlighted below should be examined.

**Table 1 Project Management Indicators Associated with the Software Acceptance Test**

PMI	Project Principal Investigator
<b>1-1</b>	<ul style="list-style-type: none"> <li>- Prepares, reviews, updates, and refines project documentation in accordance with guidelines and lessons learned.</li> <li>- Maintains document version control to ensure all changes are tracked and justified.</li> </ul>
<b>1-2</b>	<ul style="list-style-type: none"> <li>- Prepares, reviews, updates, and refines the SDP in accordance with guidelines and lessons learned.</li> <li>- Ensures the development team is fully aware of and consults the SDP.</li> <li>- Uses the SDP as a working document and frequently reviews it with team members for compliance, planning, and recommended refinements.</li> </ul>

**FY 2004 Test and Evaluation Guidance  
for CHSSI Portfolios and Projects**

PMI	Project Principal Investigator
1-3	- Complies with ( <i>technical and financial</i> ) reporting requirements.
1-4	- Manages team performance and communication. - Reviews, refines and updates the WBS when reviewing the SDP.
1-5	- Monitors development team progress and takes remedial action as necessary. - Ensures compliance with SDP and associated contracts. - Provides progress and remediation reports to the CTA/Portfolio Leader as required.
2-1	- Solicits (user) requirements and input as appropriate. - Provides timely feedback.
2-2	- Manages error identification, fix and testing procedures and oversees compliance. - Establishes systematic procedures to keep the team <del>and users</del> aware of same.
2-3	- Establishes regular meetings with the development team to review requirements, schedules and progress and to identify problems. - Regularly briefs CTA/Portfolio Leader and management chain.
3-3	- Works with supervisor, local security personnel, and the CTA/Portfolio Leader to determine and enforce export control and security restrictions early development process and validates such restrictions as the software capability develops and export control and security guidance changes. - Ensures hosting shared resource center systems administration staff are aware of restrictions to the code and affiliated data.

Finally, the CTA/Portfolio Leader should answer the following typical questions:

- Is the DoD mission relevance of this project documented in the Software Development Plan?
- Are the requirements of the DoD HPC community in this area documented? Does the software code address all or a subset of these requirements?
- Is the plan for parallel development consistent with the project's original proposal?
- Is there a reasonable milestone schedule, key steps of the process, with meaningful critical technical parameters at appropriate stages in the development effort?
- Is there a strategy to identify DoD HPC users who will benefit from this development?
- Does the Project Principal Investigator understand the project management indicators (PMI)?
- Does the Project Principal Investigator understand the challenges and risks of the effort?

4. Time Line and Responsibilities: **Please note** that the time line is fragmented into six steps to show actions required before, during, and after the test.

**FY 2004 Test and Evaluation Guidance  
for CHSSI Portfolios and Projects**

**Table 2 SAT Time Line and Responsibilities**

Timeline	Project Principal Investigator	CTA/Portfolio Leader	SAS PM
<b>Step 1</b> No less than <b>8 weeks</b> before SAT	<ul style="list-style-type: none"> <li>- With key members of the development team, review the project's original proposal against the SDP and project's CTPs and revise the SDP and CTPs if necessary. Submit changes through the CTA/Portfolio Leader to the SAS PM for approval.</li> <li>- Write the SAT test plan and review it with the team.</li> <li>- Ensure code and documentation are ready for SAT</li> <li>- Discuss SAT schedule with CTA/ Portfolio Leader and development team</li> <li>- Submit test plan to CTA/Portfolio Leader.</li> </ul>	<ul style="list-style-type: none"> <li>- Coordinate SAT schedule with Project Principal Investigator and SAS PM.</li> <li>- Review, validate, and approve the test plan. Direct and supervise revisions as appropriate.</li> </ul>	<ul style="list-style-type: none"> <li>- If applicable, review proposed revisions to the SDP and/or CTPs and notify CTA/ Portfolio Leader of decision.</li> </ul>

**FY 2004 Test and Evaluation Guidance  
for CHSSI Portfolios and Projects**

<b>Timeline</b>	<b>Project Principal Investigator</b>	<b>CTA/Portfolio Leader</b>	<b>SAS PM</b>
<b>Step 2</b> No less than <b>5 weeks</b> before SAT	<ul style="list-style-type: none"> <li>- Follow-up/complete open actions.</li> <li>- Take remedial actions necessary to obtain test plan approval.</li> <li>- Provide the proposal, the current approved SDP, and approved SAT test plan to the CTA/Portfolio Leader.</li> <li>- Coordinate with the appropriate shared resource center(s)' staff to guarantee support for software testing. Pay particular attention to the processor availability to ensure that the CTPs can be correctly tested.</li> <li>- Perform dry runs on the approved test plan using the systems where SAT will occur.</li> <li>- Coordinate with the CTA/Portfolio Leader to resolve any systems availability problems.</li> <li>- Coordinate the logistics of the test, including CTA/Portfolio Leader's system access.</li> </ul>	<ul style="list-style-type: none"> <li>- Follow-up/complete open actions</li> <li>- Validate that the current SDP and SAT test plan is on file with the SAS PM.</li> <li>- Coordinate with Project Principal Investigator concerning test plan decision and supervise remedial action as necessary.</li> <li>- <b>Forward approved test plan to SAS PM.</b></li> <li>- Monitor test coordination and progress; assist the development team in ensuring appropriate shared resource center support (e.g., HPC system availability, testing allocations, etc.).</li> </ul>	<ul style="list-style-type: none"> <li>- Not applicable.</li> </ul>
<b>Step 3</b> No less than <b>3 weeks</b> before SAT	<ul style="list-style-type: none"> <li>- Follow-up/complete open actions.</li> <li>- Confirm SAT day and time with CTA/Portfolio Leader.</li> </ul>	<ul style="list-style-type: none"> <li>- Work with Project Principal Investigator to modify SDP and SAT test plan as required.</li> <li>- Monitor test coordination and SAT preparation progress.</li> <li>- Assist in resolving questions and coordination problems.</li> <li>- Confirm SAT schedule with Project Principal Investigator.</li> </ul>	<ul style="list-style-type: none"> <li>- Not applicable.</li> </ul>

**FY 2004 Test and Evaluation Guidance  
for CHSSI Portfolios and Projects**

<b>Timeline</b>	<b>Project Principal Investigator</b>	<b>CTA/Portfolio Leader</b>	<b>SAS PM</b>
<b>Step 4</b> No less than <b>2 weeks</b> before SAT	<ul style="list-style-type: none"> <li>- Follow-up/complete open actions.</li> </ul>	<ul style="list-style-type: none"> <li>- Follow-up/complete open actions.</li> </ul>	<ul style="list-style-type: none"> <li>- Not applicable.</li> </ul>
<b>Step 5</b> <b>SAT</b>	<ul style="list-style-type: none"> <li>- Provide a project overview briefing to CTA/Portfolio Leader.</li> <li>- Assist in the conduct of SAT.</li> <li>- Take notes of discussion items and deficiencies noted.</li> </ul>	<ul style="list-style-type: none"> <li>- Conduct SAT.</li> <li>- Discuss and resolve documentation plans and performance deficiencies.</li> <li>- Discuss PMI requirements.</li> <li>- Provide oral feedback to Project Principal Investigator and development team.</li> <li>- Develop notes of test conduct, test results, and discussion.</li> </ul>	<ul style="list-style-type: none"> <li>- Not applicable.</li> </ul>
<b>Step 6</b> Within <b>4 weeks</b> after SAT	<ul style="list-style-type: none"> <li>- Develop lessons learned for future test conduct.</li> <li>- Take action in accordance with CTA/Portfolio Leader's report.</li> <li>- Follow-up/complete open actions.</li> <li>- Modify the project's SDP as necessary.</li> </ul>	<ul style="list-style-type: none"> <li>- <b>Provide a formal written report of results and discussion conclusions along with mandatory attachments to SAS PM</b> and to the Project Principal Investigator. Include exit criteria and remedial actions and suspense schedule (if necessary).</li> </ul>	<ul style="list-style-type: none"> <li>- Respond to the test report as appropriate.</li> </ul>

## FY 2004 Test and Evaluation Guidance for CHSSI Portfolios and Projects

5. Instructions and Document Formats: Instructions and document formats are linked below:

Document/Item	Intro	SAT	APP A	APP B	APP C
<b>Introduction</b>	<b>PDF</b>				
<b>Test Guidance</b>		PDF			
<b>Test Plan Guidance</b>		PDF			
<b>Test Plan Template</b>		DOC			
<b>Test Report Guidance</b>		PDF			
<b>Test Report Template</b>		DOC			
<b>CHSSI Metrics</b>			PDF		
<b>Abbreviations and Acronyms</b>				PDF	
<b>Prototypical Test Results Matrix</b>					XLS